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(72) Inventor: **YAMAGATA SHIGERU**
INAGI KYOICHI
MATSUTANI TOSHIKATSU

**(54) OPTICAL SYSTEM PART FOR LASER BEAM AND
OPTICAL SYSTEM PART FOR LITHOGRAPHIC
APPARATUS**

(57) Abstract:

PURPOSE: To provide an optical system part free from the lowering of transmittance and the variation of the refractive index distribution even after the radiation of excimer laser beam over a long period, having improved resistance to laser light and especially useful for a lithographic apparatus.

CONSTITUTION: This optical system part to be used for a

laser light having an ultraviolet wavelength range of about 190-400nm, especially an optical system part for a lithographic apparatus is formed of a high-quality synthetic quartz glass material having an OH-group concentration of $\leq 100\text{ppm}$, free from stria in three directions and having a refractive index variation range (Δn) set to $\leq 2 \times 10^{-6}$ in the working wavelength range. The optical system part is essentially free from oxygen defect in the glass texture and incorporated with hydrogen gas.

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